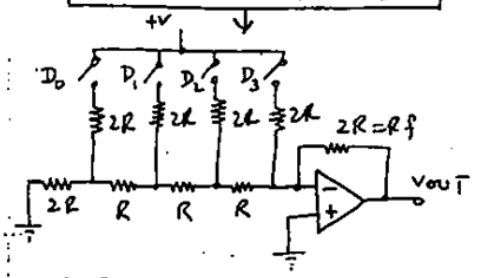
Digital to Analog converter DAC

LADDER OR R/2R DAC



R/2R because of Resistor values

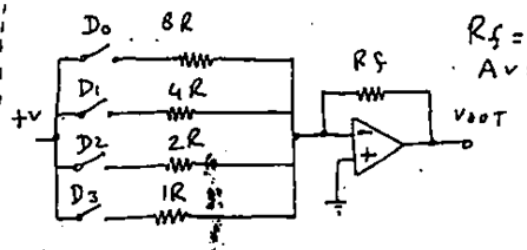
Ladder Vp network like ladder so

$$v_o = \frac{V_0 2^0 + V_1 2^1 + V_2 2^2 + \cdots + V_n 2^n}{2^n - 1}$$

n = no. of total Vp

(Millman's theorem)

Binary weighted



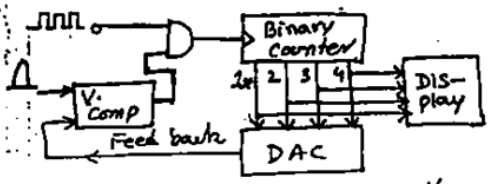
$R_f = R_T$ (o/p)

Av = unity

Binary weighted because values of Resistor at Vp ratio same as Binary weighted but ivert to i/p bit number.

$$V_0 = \left(\frac{R_f}{R_{in}}\right) V_{in}$$

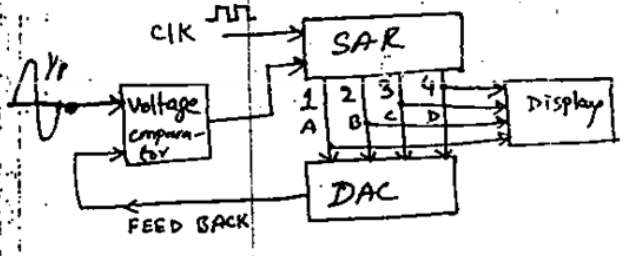
COUNTER TYPE ADC Block diagram



Voltage compurator Compair voltage with Analoge o/p of AND is clock of Binary counter will count at every clock & stop at o/p = Vp.

SUCCESSIVE-APPROXIMATION ADC

Block diagram



Following Flow chart Explain.